

RESPONSE OF WHEAT TO SEWAGE SLUDGE APPLIED UNDER TWO DIFFERENT MOISTURE REGIMES

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SUMMARY

A field experiment was conducted from 1989 to 1992 to investigate the effect of sewage sludge applications on wheat yield under different irrigation regimes. The sewage sludge was applied at rates equivalent to 0, 20 or 60 t ha⁻¹ whenever the available soil moisture reached 30 or 70%. The results showed a significant response in grain yield and its nutrient content with no significant differences between rates of sewage sludge applied. Much higher responses were obtained under the wet than under the dry regime.

Respuesta del trigo a los sedimentos de las aguas residuales

RESUMEN

De 1989 a 1992 se llevó a cabo un experimento de campo para investigar el efecto de las aplicaciones de los sedimentos de las aguas residuales en el rendimiento del trigo bajo distintos regímenes de irrigación. Los sedimentos de las aguas residuales se aplicaron en proporciones equivalentes a 0, 20, ó 60 toneladas por hectárea, siempre que la humedad de la tierra disponible alcanzó el 30 o el 70%. Los resultados mostraron una respuesta significativa en el rendimiento del grano y su contenido en nutrientes sin ninguna diferencia significativa entre las proporciones de sedimentos de las aguas residuales aplicadas. Se obtuvieron respuestas mucho mejores en un régimen húmedo que en un régimen seco.

INTRODUCTION

Sewage sludge can be utilized as a soil amendment. Such usage is justified as sludge usually contains appreciable amounts of organic materials and some essential elements. Many investigators have proved the efficiency of sewage sludge in enhancing growth and increasing crop yield (Magdoff and Amadon, 1980; Danneberg *et al.*, 1981; Al-Nahidh, 1991).

An important practical consideration in the application of sewage sludge to agricultural land is the adjustment of the amount of sludge applied to the soil to obtain the best results. Modest amounts of sewage sludge improve the physical condition of mineral soils and supply significant amounts of plant nutrients. Excessive amounts, however, can be detrimental to crop production, reducing yields and crop quality (Schauer *et al.*, 1980; Fresquez *et al.*, 1990). Numerous studies have been carried out to establish appropriate application rates of sewage sludge for optimum plant growth and production. Moderate applications of sewage sludge (25 t ha⁻¹) were found to have little effect on the chemistry of the